

Claim Amendments

1. (presently amended) An apparatus, comprising:

a client computer, comprising:

a central processor unit;

memory device coupled to the central processor unit, said memory being configured to store computer-executable instructions;

a communication device coupled to the central processor unit, said communication device adapted to establish a wireless communication link with one or more remotely located application execution servers ~~computers~~ (“server farm”);
said client computer is optionally adapted to transmit a signal to an application discovery server in order to discover a desired client-side application, said client-side application may be located on (or downloaded to) the server farm;

said client computer is optionally adapted to receive a signal from the discovered client-side application (a) to launch said discovered application, or (b) to connect to said discovered application, or (c) to reconnect to said discovered application;

a graphics protocol engine coupled to the communication device adapted to receive packets containing at least one of a plurality of drawing actions on drawables via a remote display protocol according to capability information exchanged between the client computer and said server farm ~~one or more remotely located server computers~~; and

a display device coupled to the communication device, wherein said display device is adapted to act as a remote output device for ~~at least one~~ a client-side application program running on ~~at least one of~~ said server farm ~~one or more remotely located server computers~~

whereby the computer-executable instructions when executed by the central processor unit, cause the client computer

(a) to transmit user input to the server farm ~~one or more remotely located server computers~~, on which server farm ~~computer~~ is executed a the client-side application program, and

(b) to receive from the server farm ~~computer~~ screen updates of user interface logic of the client-side application program via a remote display protocol, thereby allowing graphical display to be virtualized and served across the wireless network to the client computer without the need for a virtual execution environment on the client computer.

2. (presently amended) The apparatus as in claim 1 wherein the ~~at least one~~ client-side application program is an E-mail client program, a streaming media application, a browser program, a groupware program, a financial application program, a calendar application program, or a location based service application program.

3. ~~(previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a browser program.~~

4. ~~(previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a groupware program.~~

5. (presently amended) The apparatus as in claim 1, further comprising:
first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to ~~the a~~ server farm.

6. (presently amended) The apparatus as in claim 1, further comprising:
second component coupled to the memory device, said second component configured to receive a compound request message from the server farm.

7. (original) The apparatus as in claim 6, further comprising:
third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer.

8. (presently amended) The apparatus as in claim 1, further comprising:
fourth component coupled to the memory device, said fourth component configured to transmit a user's identification information to ~~the a~~ server farm; and

fifth component coupled to the memory device, said fifth component configured to receive information regarding a list of applications previously executing for that user.

9. (previously amended) The apparatus as in claim 1, further comprising:
sixth component coupled to the memory device, said sixth component configured to select one of a plurality of applications from a list of available applications.
10. (previously amended) The apparatus as in claim 1, further comprising:
seventh component coupled to the memory device, said seventh component configured to decode streams of multimedia signals on the client.
11. ~~(original) The apparatus as in claim 10, wherein the seventh component comprises an MPEG decoder.~~
12. (presently amended) The apparatus as in claim 1, further comprising:
a memory device coupled to communications device, said memory device being configured to store drawables corresponding to the ~~at least one~~ client-side application program.
13. ~~(previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a financial application program.~~
14. ~~(previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a calendar application program.~~
15. ~~(previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a location-based service application program.~~
16. (presently amended) An apparatus comprising:
a client computer configured to fit in a person's hand, comprising:
a central processor unit;
memory device coupled to the central processor unit, said memory being configured to store instructions to direct the central processing unit;
a communication device coupled to the central processor unit and adapted to establish a wireless communication link with one or more remotely located application execution servers ~~computers~~ ("server farm");

second component coupled to the memory device, said second component configured to receive a compound request message from the server wherein the compound request message comprises a cache of a plurality of events generated in a predetermined time period;

third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer; and

a display device coupled to the central processor unit,

wherein said client computer device is adapted to act as a remote output device for ~~at least one~~ a client-side application program running on at least one of said server farm ~~remotely located server computers~~ over a wide-area mobile network ~~without the need for an execution environment~~ thereby obviating the need for a browser on the client computer.

17. ~~(previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a browser program.~~

18. (presently amended) The apparatus as in claim 16, wherein the ~~at least one~~ client-side application program is an E-mail client program, a streaming media application, a browser program, a groupware program, a financial application program, a calendar application program, or a location based service application program.

19. (original) The apparatus as in claim 16, further comprising:

a portion of the memory device configured as a local cache; wherein drawables corresponding to the one or more application programs are stored in the cache for local retrieval and display.

20. (previously amended) The apparatus as in claim 16, further comprising:

fourth component coupled to the communication device, said fourth component configured to transmit a user's identification information to a server; and

fifth component coupled to the communication device, said fifth component configured to receive information regarding a list of applications previously executing for that user.

21. (previously amended) The apparatus as in claim 16, further comprising:

sixth component coupled to the communication device, said sixth component configured to select one of a plurality of applications from a list of available applications.

22. (previously amended) The apparatus as in claim 16, further comprising:

seventh component coupled to the communication device, said fourth component configured to decode streams of multimedia signals on the client computer.

23. ~~(previously amended) The apparatus as in claim 22, wherein the seventh component comprises an MPEG decoder.~~

24. (original) The apparatus as in claim 16, further comprising: first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to a server.

25. ~~(previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a groupware program.~~

26. ~~(previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a financial services application program.~~

27. ~~(previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a calendar service application program.~~

28. ~~(previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a location-based service application program.~~

29. (canceled)

30. (presently amended) A ~~method of~~ computer program embodied on a computer readable medium for use with a computer for establishing a client-server communication between a client computer and a server computer, said ~~method~~ computer program comprising the steps of:

establishing a connection between a client computer and a discovery server;

optionally discovering a desired application hosted on or downloadable to an execution server ("server farm");

establishing a session between the client computer and the server farm computer, said client computer and server farm computer being connected using a wireless network;
exchanging client capability information with the server farm computer;
~~executing~~ launching (or reconnecting to) a client-side application program on the server farm computer;
receiving, at the client computer, user input for the client-side application program;
transmitting, to the server computer, user input received at the client computer for interpretation by the client-side application program running on the server farm computer; and
receiving, at the client computer, updates of user interface of the client-side application program from the server farm computer, via a remote display protocol thereby allowing user interface to be virtualized and served across the wireless network to the client computer.

31. ~~(original) The method as in claim 30, wherein the step of establishing a session between the client and the server computer comprises the step of:~~
~~transmitting server system information to the client computer.~~

32. (presently amended) The computer program method as in claim 30, further comprising the step of:
aggregating a number of requests to be sent to the client computer; and
transmitting the aggregated requests as a compound request to the client computer.

33. (presently amended) The computer program method as in claim 30, further comprising the step of:
maintaining a cache of drawables transmitted to the client computer; and
replaying the client computer's state when the client computer reestablishes connection with the server computer.

34. (presently amended) The computer program method as in claim 30, wherein the client computer interfaces with the user in a multimodal form.

35. (presently amended) The computer program method as in claim 30, further comprising the steps of:

receiving via an event system proxy speech input from the client computer; and
inputting the speech received from the event system proxy to a speech recognition server,
construing the speech input at the speech recognition server, and
instructing the client computer in accordance with the construed speech.

36. (presently amended) The computer program method as in claim 30, further comprising the step of:

selectively disabling substreams of audio/visual data.

37. (original) ~~The method as in claim 36, further comprising the step of:~~

~~receiving an instruction from a user to selectively disable substreams of audio/visual data.~~

Clean Copy of the Currently Pending Claims

1. (presently amended) An apparatus, comprising:

a client computer, comprising:

a central processor unit;

memory device coupled to the central processor unit, said memory being configured to store computer-executable instructions;

a communication device coupled to the central processor unit, said communication device adapted to establish a wireless communication link with one or more remotely located application execution servers ("server farm");

said client computer is optionally adapted to transmit a signal to an application discovery server in order to discover a desired client-side application, said client-side application may be located on (or downloaded to) the server farm;

said client computer is optionally adapted to receive a signal from the discovered client-side application (a) to launch said discovered application, or (b) to connect to said discovered application, or (c) to reconnect to said discovered application;

a graphics protocol engine coupled to the communication device adapted to receive packets containing at least one of a plurality of drawing actions on drawables via a remote display protocol according to capability information exchanged between the client computer and said server farm; and

a display device coupled to the communication device, wherein said display device is adapted to act as a remote output device for a client-side application program running on said server farm

whereby the computer-executable instructions when executed by the central processor unit, cause the client computer

(a) to transmit user input to the server farm, on which server farm is executed the client-side application program, and

(b) to receive from the server farm screen updates of user interface logic of the client-side application program via a remote display protocol, thereby allowing graphical display to be virtualized and served across the wireless network to the client computer without the need for a virtual execution environment on the client computer.

2. (presently amended) The apparatus as in claim 1, wherein the client-side application program is an E-mail client program, a streaming media application, a browser program, a groupware program, a financial application program, a calendar application program, or a location based service application program.

3. (canceled)

4. (canceled)

5. (presently amended) The apparatus as in claim 1, further comprising:
first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to the a server farm.

6. (presently amended) The apparatus as in claim 1, further comprising:
second component coupled to the memory device, said second component configured to receive a compound request message from the server farm.

7. (original) The apparatus as in claim 6, further comprising:
third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer.

8. (presently amended) The apparatus as in claim 1, further comprising:
fourth component coupled to the memory device, said fourth component configured to transmit a user's identification information to the server farm; and

fifth component coupled to the memory device, said fifth component configured to receive information regarding a list of applications previously executing for that user.

9. (previously amended) The apparatus as in claim 1, further comprising:

sixth component coupled to the memory device, said sixth component configured to select one of a plurality of applications from a list of available applications.

10. (previously amended) The apparatus as in claim 1, further comprising:

seventh component coupled to the memory device, said seventh component configured to decode streams of multimedia signals on the client.

11. (canceled).

12. (presently amended) The apparatus as in claim 1, further comprising:

a memory device coupled to communications device, said memory device being configured to store drawables corresponding to the client-side application program.

13. (canceled)

14. (canceled)

15. (canceled)

16. (presently amended) An apparatus comprising:

a client computer configured to fit in a person's hand, comprising:

a central processor unit;

memory device coupled to the central processor unit, said memory being configured to store instructions to direct the central processing unit;

a communication device coupled to the central processor unit and adapted to establish a wireless communication link with one or more remotely located application execution servers ("server farm");

second component coupled to the memory device, said second component configured to receive a compound request message from the server wherein the compound request message comprises a cache of a plurality of events generated in a predetermined time period;

third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer; and

a display device coupled to the central processor unit,

wherein said client computer device is adapted to act as a remote output device for a client-side application program running on at least one of said server farm over a mobile network thereby obviating the need for a browser on the client computer.

17. (canceled)

18. (presently amended) The apparatus as in claim 16, wherein the client-side application program is an E-mail client program, a streaming media application, a browser program, a groupware program, a financial application program, a calendar application program, or a location based service application program.

19. (original) The apparatus as in claim 16, further comprising:

a portion of the memory device configured as a local cache; wherein drawables corresponding to the one or more application programs are stored in the cache for local retrieval and display.

20. (previously amended) The apparatus as in claim 16, further comprising:

fourth component coupled to the communication device, said fourth component configured to transmit a user's identification information to a server; and

fifth component coupled to the communication device, said fifth component configured to receive information regarding a list of applications previously executing for that user.

21. (previously amended) The apparatus as in claim 16, further comprising:

sixth component coupled to the communication device, said sixth component configured to select one of a plurality of applications from a list of available applications.

22. (previously amended) The apparatus as in claim 16, further comprising:

seventh component coupled to the communication device, said fourth component configured to decode streams of multimedia signals on the client computer.

23. (canceled)

24. (original) The apparatus as in claim 16, further comprising: first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to a server.

25. (canceled)

26. (canceled)

27. (canceled)

28. (canceled)

29. (canceled)

30. (presently amended) A computer program embodied on a computer readable medium for use with a computer, said computer program comprising the steps of:

establishing a connection between a client computer and a discovery server;

discovering a desired application hosted on or downloadable to an execution server (“server farm”);

establishing a session between the client computer and the server farm, said client computer and server farm being connected using a wireless network;

exchanging client capability information with the server farm;

launching (or reconnecting to) a client-side application program on the server farm;

receiving, at the client computer, user input for the client-side application program;

transmitting, to the server computer, user input received at the client computer for interpretation by the client-side application program running on the server farm and

receiving, at the client computer, updates of user interface of the client-side application program from the server farm, via a remote display protocol thereby allowing user interface to be virtualized and served across the wireless network to the client computer.

31. (canceled)

32. (presently amended) The computer program as in claim 30, further comprising the step of:

aggregating a number of requests to be sent to the client computer; and
transmitting the aggregated requests as a compound request to the client computer.

33. (presently amended) The computer program as in claim 30, further comprising the step of:

maintaining a cache of drawables transmitted to the client computer; and
replaying the client computer's state when the client computer reestablishes connection with the server computer.

34. (presently amended) The computer program as in claim 30, wherein the client computer interfaces with the user in a multimodal form.

35. (presently amended) The computer program as in claim 30, further comprising the steps of:

receiving via an event system proxy speech input from the client computer; and
inputting the speech received from the event system proxy to a speech recognition server,
construing the speech input at the speech recognition server, and
instructing the client computer in accordance with the construed speech.

36. (presently amended) The computer program as in claim 30, further comprising the step of:

selectively disabling substreams of audio/visual data.

37. (canceled)